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I also certify that the application is now proceeding in the name as identified herein.

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Dated 13 May 2004

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GB 0313615.7

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of:

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P01/7700/0.00-0313615.7

12 JUN 2003

Your reference **Voicemail Mgmt II (UK)**

<b>The Patent Office</b>		<b>Request for grant of a Patent</b>	
		<b>Form 1/77</b>	<b>Patents Act 1977</b>
<b>1 Title of invention</b> Specifications for mobile voicemail management system <b>0313615.7</b>			
<b>2. Applicant's details</b> <input checked="" type="checkbox"/> First or only applicant <b>2a</b> If applying as a corporate body: Corporate Name  Country			
<b>2b</b> If applying as an individual or partnership Surname <b>Doullon</b> Forenames <b>Daniel Michael</b>			
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2d	Corporate Name
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	Forenames
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	ADP Number
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	Agent's ADP Number      C03274
	7270457002

4 Reference Number

Voicemail Mgmt II (UK)

5 Claiming an earlier application date

An earlier filing date is claimed:

Yes ☐

No ☒

Number of earlier  
application or patent number

Filing date

15 (4) (Divisional)

8(3)

12(6)

37(4)

☐☐☐☐

6 Declaration of priority

Country of filing

Priority Application Number

Filing Date

GB

0309088.3

22 April 2003  
(22.04.2003)

7 Inventorship

The applicant(s) are the sole inventors/joint inventors

Yes ☐

No ☒

8 Checklist

Continuation sheets

Claims 0

Description 18 *✓*

Abstract 0

Drawings 0

Priority Documents *Yes/No*

Translations of Priority Documents *Yes/No*

Patents Form 7/77 *Yes/No*

Patents Form 9/77 *Yes/No*

Patents Form 10/77 *Yes/No*

9 Request

We request the grant of a patent on the basis of this application

Signed:

*Origin Limited*

(Origin Limited)

Date: 12 June 2003

## Specifications for Mobile Voicemail Management System

Version :	2.3
Date :	24 <sup>th</sup> May 2003
Authors :	Daniel Doulton, Christina Domecq
Related documents :	V2T Concept - 2.2.doc

### Summary

These are the top-level specifications for implementing the idea described in the patent application – "V2T Concept – 2.2.doc" and act as an addendum to it.

There are three inventions specified:

1. Voicemail to Text system - This gives subscribers to option to have voicemail delivered to them as text (SMS/MMS or equivalent messaging format) with the option to hear the original voicemail.
2. A new Voicemail Management Application – Adds a GUI (graphical user interface) to the existing audio menu system provided by voicemail systems and integrates the phone's call divert features into this application to provide a single point for voicemail management.
3. Speech to Text system – The allows users to speak a text message, have it converted to text and sent without using the often tiring phone-pad alphanumeric entry system.

There are also two solutions described which deliver the Voicemail to Text invention:

1. Inside the Network Operator – system is integrated within their Network Services as one of theirs.

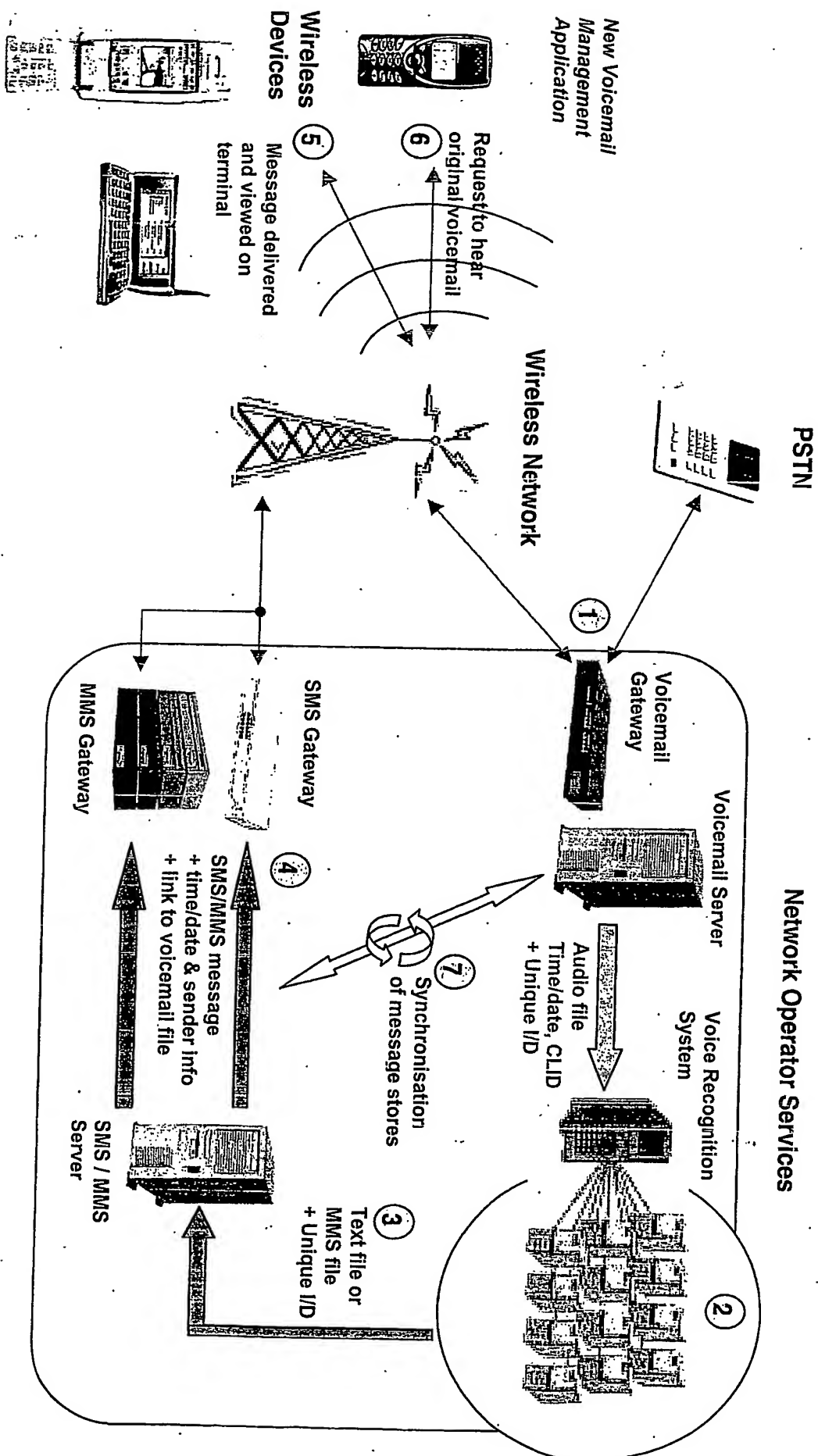
2. Outside the Network Operator – a Service Company accesses the Network Operator's Voicemail system via fixed telephony and provides an external service direct to end users, or houses it's own voicemail system and delivers it's service completely outside the Network Operator's services.

It does not detail technical information on how to code or connect with voicemail systems, update mobile phone SMS/MMS GUI or voice recognition systems as this will be developed once the operational environment (suppliers, hosts (Network Operator)) and development environment are known.



## Inside the Operator

## Schematics & Process



## Process

① Caller, from either PSTN or Mobile phone network, leaves a voicemail

2 Voicemail converted into SMS or MMS file

Link (unique i/d) to original voicemail file generated – i/d can just be a Hash of the time/date & caller number  
Time & date of voicemail added to header of file  
Caller number added to header of file

*Note : The Voice Recognition can be done either inside the Network Operator's network, or farmed out to a 3<sup>rd</sup> party specialist.*

③ Message file sent to SMS or MMS servers for storage.

④ Message sent via SMS or MMS gateway to wireless terminal.

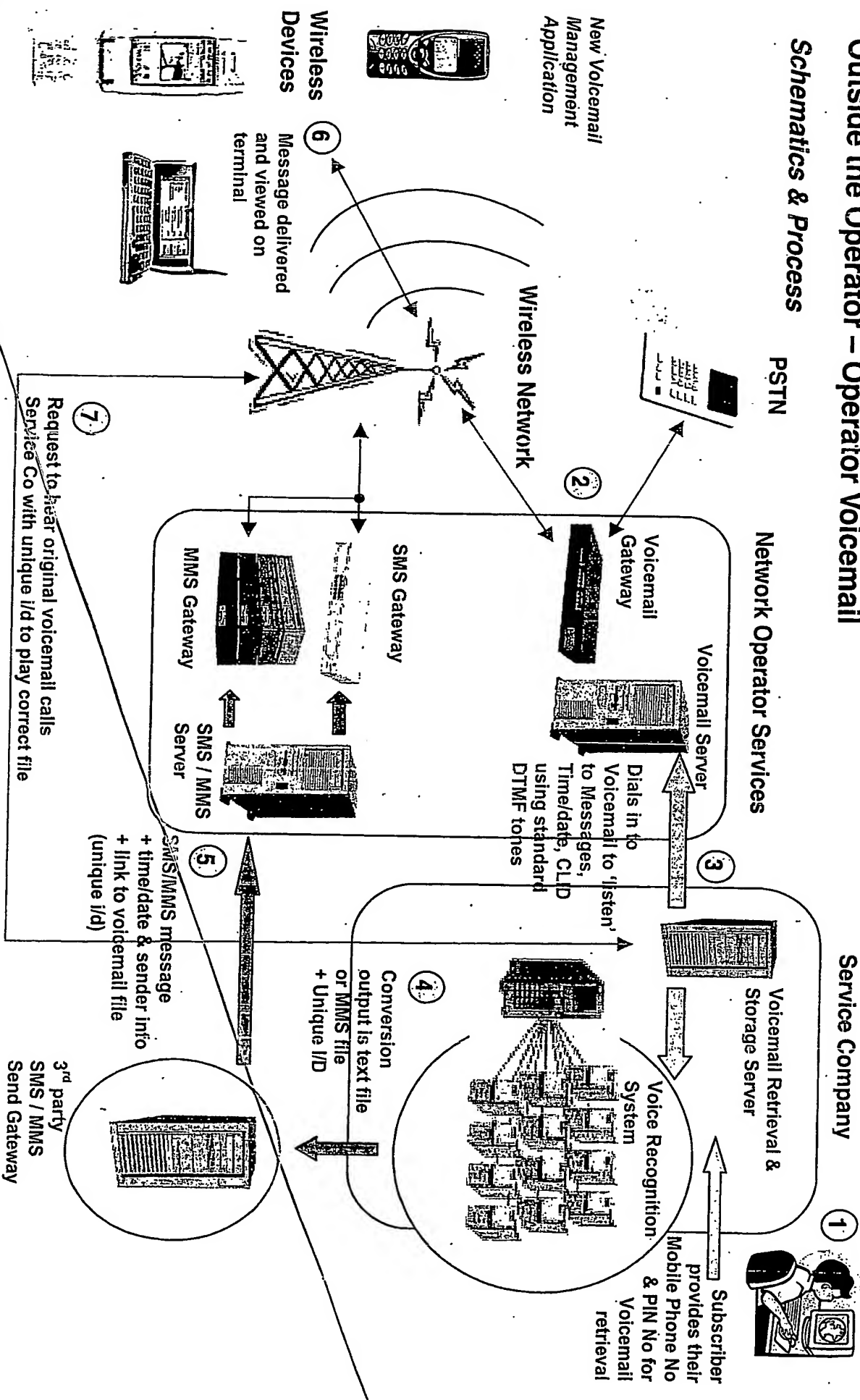
⑤ User view and manages 'text' voice mails within SMS or MMS application, or even inside Messaging depending on platform.

⑥ User can request to hear original voice mail through new Voicemail Management Application (provides GUI) on terminal : Play, FFW, REW, Next, Erase, Store, Forward, Time/date of message, Call back and any other existing voicemail controls available through audio prompts/ménus.

⑦ Positive delivery of SMS/MMS synchronises SMS/MMS store with Voicemail store as message read. Exact workings will depend on Operator preferences – how synchronised, how long original stored, etc...

# Outside the Operator – Operator Voicemail

## Schematics & Process



## Process

- ① New subscriber provides Service Co. with their phone number, voicemail box PIN No. and other details. This now enables the Voicemail Retrieval Server to call into their voicemail box to retrieve messages by polling it regularly, or the Voicemail system inside the Operator sending it notification of new voicemail. This requires a bulk deal with a phone company.  
2 options for user billing :
  1. Reverse Text billing (micro-billing) – but only gives 20-30% of billed value
  2. Monthly Credit/Debit Card billing – 5% of billed value
- ② Caller, from either PSTN or Mobile phone network, leaves a voicemail.
- ③ Service Co. Voicemail Retrieval & Storage Server calls into Subscriber's Voicemail Box & 'listens' to messages:
  - Uses standard DTMF tones to play messages, retrieve time of call, caller number and other data to build up necessary data for text delivery
  - Creates unique i/d – can just be a Hash of the time/date & caller number
  - Stores voicemail for future playback
- ④ Voicemail audio file sent to Voice Recognition system and converted into SMS or MMS file and sent to a 3<sup>rd</sup> party SMS/MMS gateway for delivery
  - Link (unique i/d) to original voicemail file generated and embedded as info hidden from the user
  - Time & date of voicemail added to header of file
  - Caller number added to header of file
  - MMS file can contain original audio file embedded for local playback

*Note : The Voice Recognition can be done either inside the Service Company's network, or farmed out to a 3<sup>rd</sup> party specialist.*
- ⑤ SMS or MMS message delivered via subscriber's Network Operator
  - Message sent via SMS or MMS gateway to wireless terminal.
  - User view and manages 'text' voice mails within SMS or MMS application, or even inside Messaging depending on

platform.

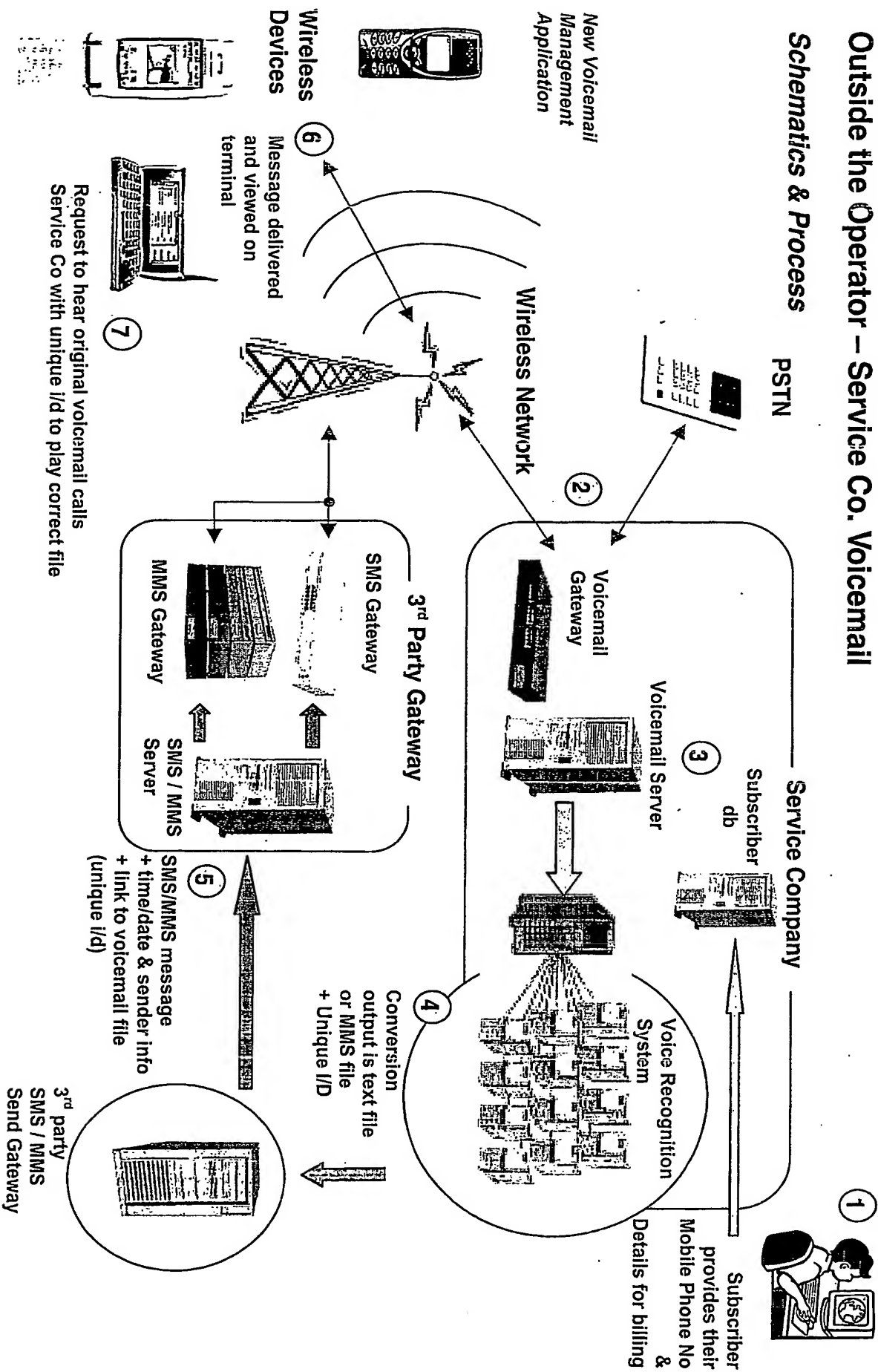
- 6 User can dial into their voicemail on the Network using the new Voicemail Management Application (provides GUI) on terminal: Play, FFW, REW, Next, Erase, Store, Forward, Time/date of message, Call back and any other existing voicemail controls available through audio prompts/menus.

*Note : This is a separate application for connecting to the user's voicemail system inside the Network Operator.*

- 7 To Hear Original voicemail, the user is connected back to the Service Company's Voicemail Storage server. The unique i/d (hidden from the user in the SMS/MMS message) retrieves the correct file to play back.

# Outside the Operator – Service Co. Voicemail

## Schematics & Process



**Process**

- ① New subscriber provides Service Co. with their phone number and billing details. They are now using the Service Co. as their voicemail provider.
  - 2 options:
    1. They manually divert calls on their phone to Service Co. Voicemail gateway number
    2. Service Co. provides over-the-air upgrade to change this behaviour
  - 2 options for billing :
    3. Reverse Text billing (micro-billing) – but only gives 20-30% of billed value
    4. Monthly Credit/Debit Card billing – 5% of billed value
- ② Caller, from either PSTN or Mobile phone network, leaves a voicemail.
- ③ Service Co. Voicemail ~~provides~~ all voicemail functions
  1. Stores voicemail for future playback
  2. ~~Creates~~ unique i/d – can just be a Hash of the time/date & caller number
- ④ Voicemail audio file sent to Voice Recognition system and converted into SMS or MMS file and sent to a 3<sup>rd</sup> party SMS/MMS gateway for delivery
  - Link (unique i/d) to original voicemail file generated and embedded as info hidden from the user
  - Time & date of voicemail added to header of file
  - Caller number added to header of file
  - MMS file can contain original audio file embedded for local playback

*Note : The Voice Recognition can be done either inside the Service Company's network, or farmed out to a 3<sup>rd</sup> party specialist.*
- ⑤ SMS or MMS message delivered via subscriber's Network Operator
  - Message sent via SMS or MMS gateway to wireless terminal.

- User view and manages 'text' voice mails within SMS or MMS application, or even inside Messaging depending on platform.

6 User can dial into their voicemail on the Network using the new Voicemail Management Application (provides GUI) on terminal: Play, FFW, REW, Next, Erase, Store, Forward, Time/date of message, Call back and any other existing voicemail controls available through audio prompts/menus.

*Note : This is a separate application for connecting to the user's voicemail system inside the Network Operator.*

⑦ To Hear Original voicemail, the user is connected back to the Service Company's Voicemail Storage server. The unique i/d (hidden from the user in the SMS/MMS message) retrieves the correct file to play back.



## ***Voicemail to Text - Phone Software***

In either of the above systems, the terminal (or mobile phone of some nature) will need to be upgraded OTA (Over the Air) or otherwise, in the following manner:

### **Viewing Voicemail-Text Messages**

There are two options:

1. Do not modify the existing GUI – just treat as another message
2. Modify the GUI to incorporate the new features below

1. New icon indicating it's a voicemail message in your inbox:



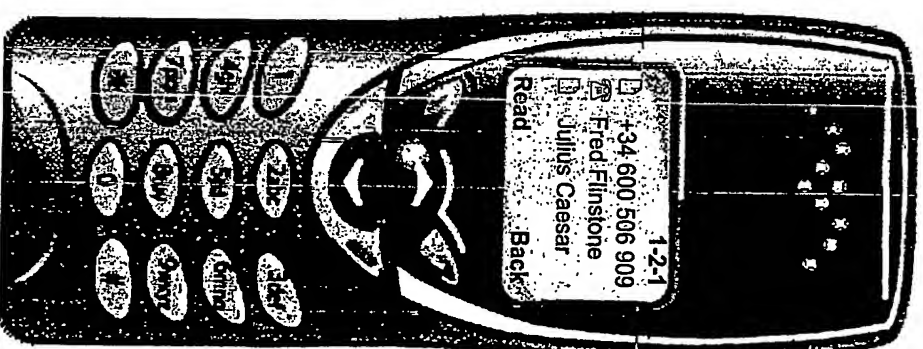
Homer Simpson

compared with the existing icons for original text messages :



Julius Caesar

The simplest solution is to precede each header with something logical such as "V:"  
V: Homer Simpson



2. Inside the text file, add time and date of voicemail:

<b>Fri 12 May, 17:20</b> I'll see you tonight for dinner at the Langham say 8pm. Don't forget the contract. Cheers	
<b>Options</b>	<b>Back</b>

Under the standard 'Options' menu, or equivalent, add:

### Hear Original

This allows you to now hear the original voicemail and uses the unique i/d encoded into the SMS/MMS message to correctly connect to the original voice file.

There are three options:

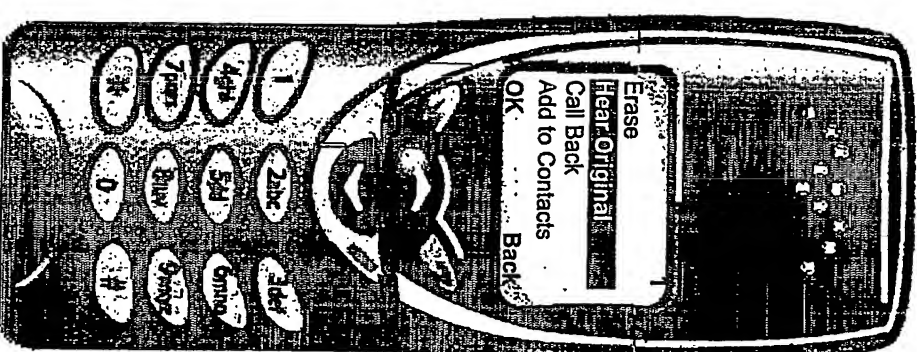
1. You go into the standard voicemail system and follow the existing audio prompts for hearing the message.
2. You go into the new Voicemail Management Application shown below.  
*In either case, upon ending the call to voicemail, you are returned to the same point in the messaging application to decide what to do with the text version.*
3. You embed the original sound file in an MMS message or equivalent to be played back locally on the terminal

### Call Back

Uses the caller's number recorded with the message to call them back.

### Add to Contacts

Takes the caller's number and automatically adds it to a new contact/address entry for the user to complete with name, etc...



## **Voicemail Management Application**

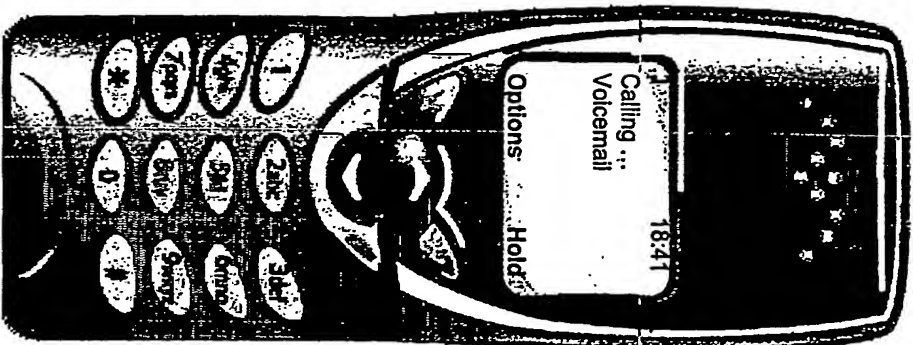
This application can be used in either stand-alone *or* as integral part of the Voicemail to SMS/MMS system (or equivalent text delivery system) described herein.

This application gives a user a GUI (Graphical User Interface) in addition to the audio prompts they are used to receiving when accessing and managing their voicemail.

When a subscriber calls into their voicemail, they are first taken into their 'Voicemail Inbox' and then presented with the controls shown in the schematic below.

For programming purposes, these controls will nearly all relate to standard DTMF tones that the voicemail system uses as input to it when the user currently presses keys on their phone's keypad.

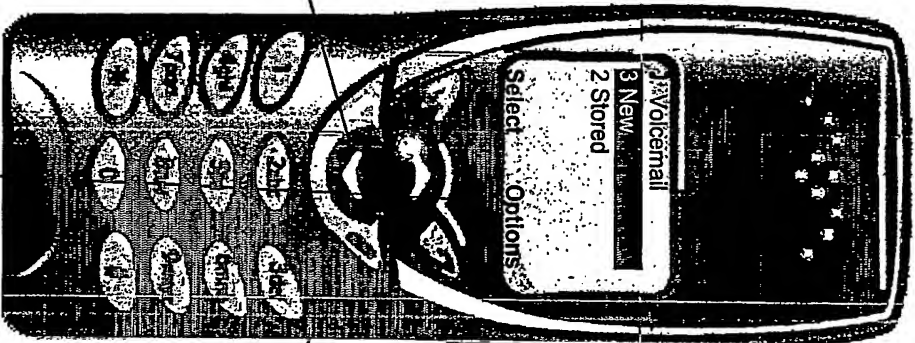
Possible configurations of these controls are:



Calling Voicemail invokes new management application which first displays what's in your Voicemail Inbox



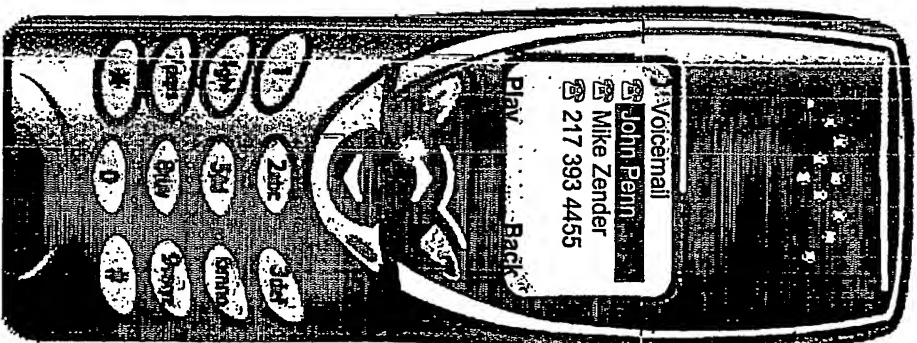
Standard navigation - scroll and select



User selects which type (New or Stored) to listen to ...



Ends call at any point



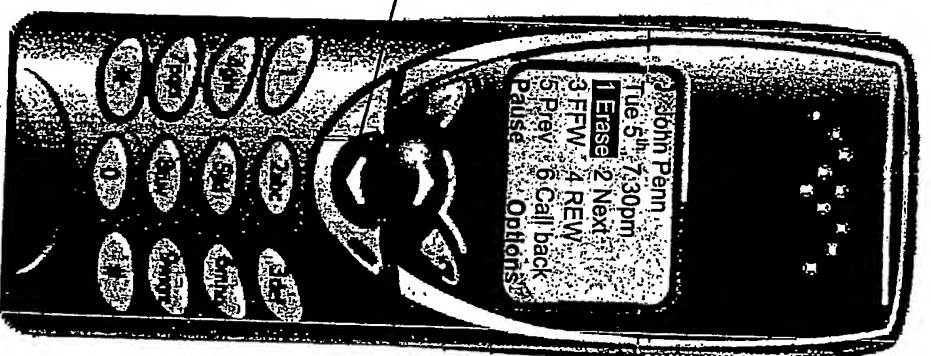
...then which message



Options Menu	Action
Play all	Plays all messages in sequence
Delete all	Offers which to delete - all New or all Stored - and deletes them all
Mark all heard	Moves all New messages into Stored folder
Forward to	Forwards message to another subscribers inbox
Store	Store - only available in New messages or during play back - moves message to Stored folder

During message, Voicemail controls are displayed on screen. E.g. pressing button 1 Erases the message, 2 skips to next message, etc...

Scrolls to continuation of Voicemail controls  
7 Text 8 Forward  
9 Add 0 Configure



Note: The exact numbers (keypad numbers) and their related functions will be those of the existing voicemail system and so will vary by network operator/voicemail system.

Voicemail Controls	Action
1 Erase	Erases current message – returns to previous screen, New or Stored folder view for user to select which message to now listen to, or goes straight to playing next message.
2 Next	Skips to next message. At end of messages, goes back to previous screen, New or Stored folder view.
3 FFW	Fast forwards through message whilst button held. At end of message, stops and shows next message to be heard (New or Stored folder view) or at end of all messages, goes back to top level view (New & Stored folder view)
4 REW	Rewinds back through message whilst button held. At end of message, stops and shows previous message to be heard (New or Stored folder view) or at end of all messages, goes back to top level view (New & Stored folder view)
5 Previous	Skips to previous message. At beginning of messages, goes back to previous screen, New or Stored folder view.
6 Call back	Calls user back and ends Voicemail call.
7 Text message	Opens up Text (SMS or MMS) application with callers number selected as default recipient for user to send them a text message.
8 Forward	Forwards message to another subscribers Voicemail inbox.
9 Add to Contacts	Adds number to contacts through phone's standard contacts/address book application.
0 Configure	Configures voicemail – standard options for Record New Greeting, Turn Greeting on/off, etc... Integrates into existing phone software for configuring Divert behaviour – e.g. divert on busy/no answer/phone off to voicemail or specified number.

## **Speech to Text (SMS/MMS) Service**

This turns typing text messages around for the user. It is often preferable (and often a natural difficulty for people to thumb type text on a small alpha-numeric keypad) for users to want to send a message in text format, rather than voice – e.g. don't want to disturb the receiver, but wanted you to get the message to them as in a meeting. They may also be in a car and can't type whilst driving.

The user goes into their Messaging/Text application, simply selects the caller either from their phone's address book, or types their number in, then selects this new option : Say it! The user might also be connected to the service to start with and will simply speak the number to the voice recognition engine which will take the user through the process.

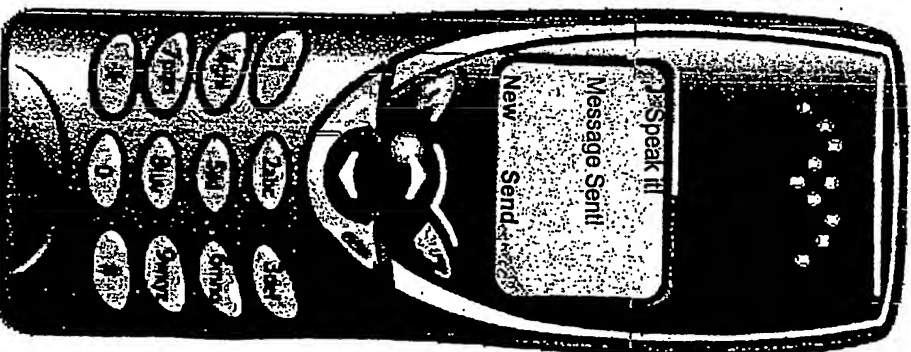
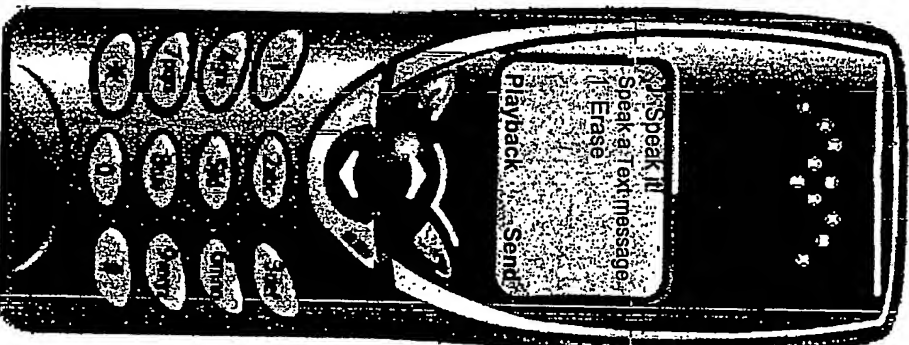
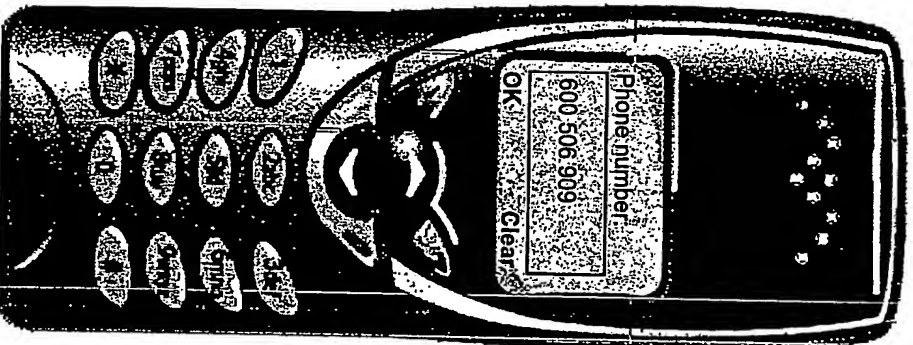
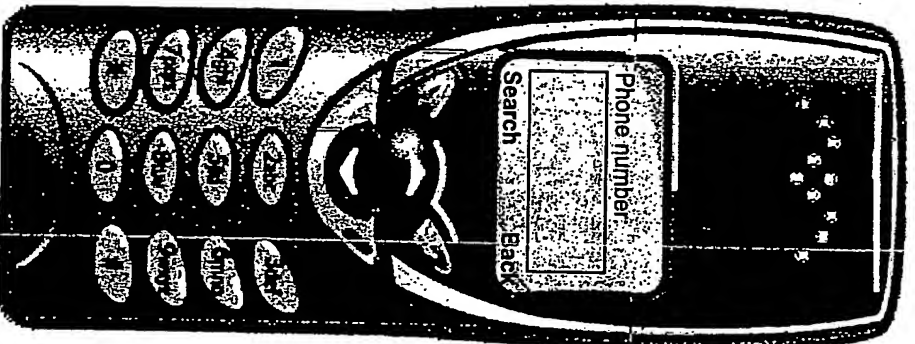
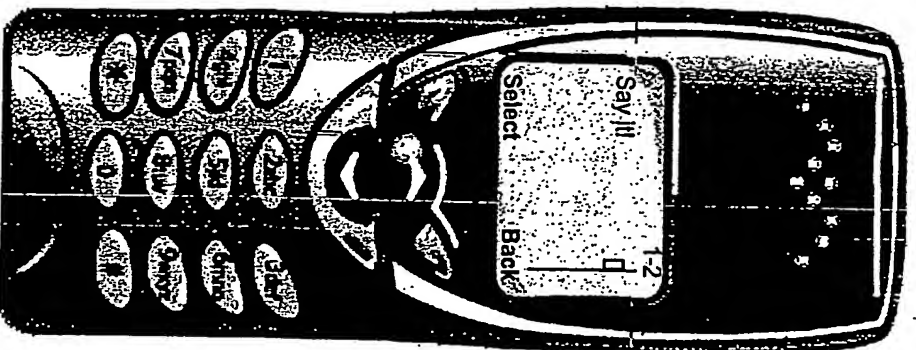
This connects to the Service Co. Voice Engine, records it, converts it and then sends it through the SMS/MMS gateway. The user will be given aural prompts for controlling the input, hearing the conversion and sending the message.

Possible User Interface on the phone:

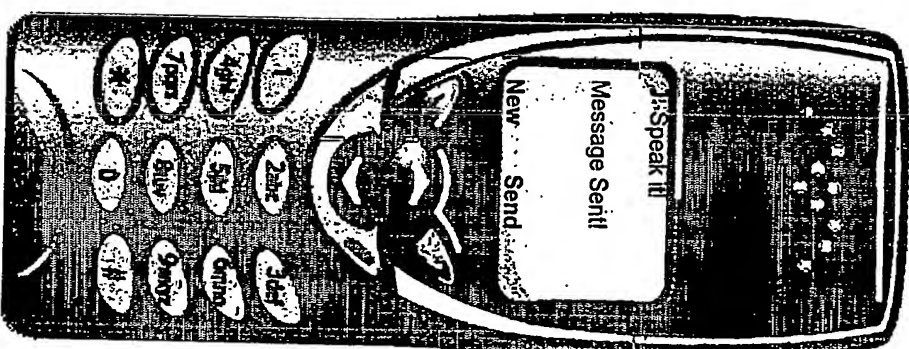
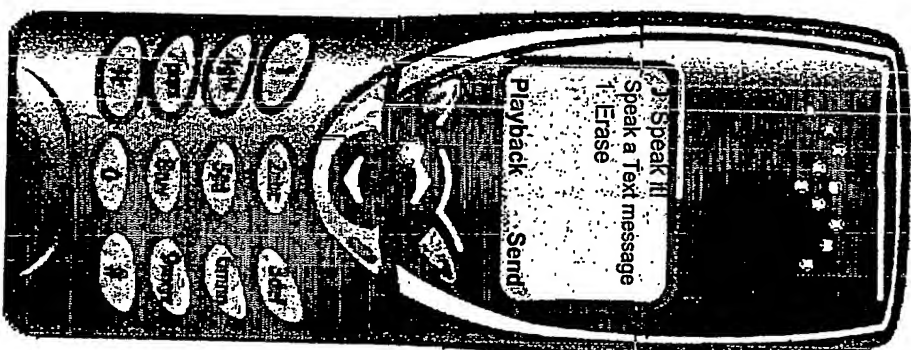
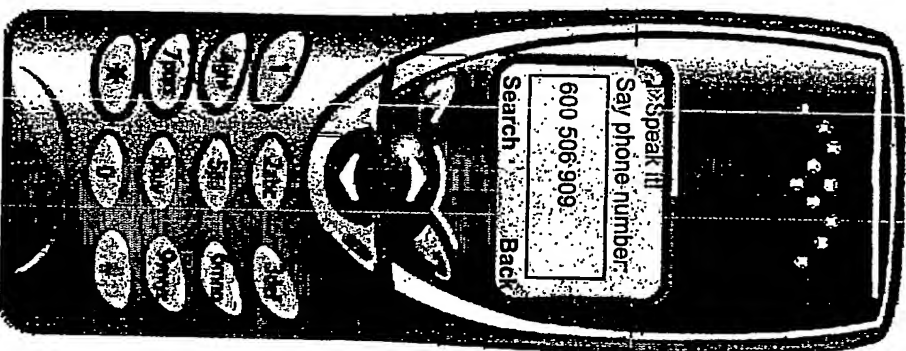
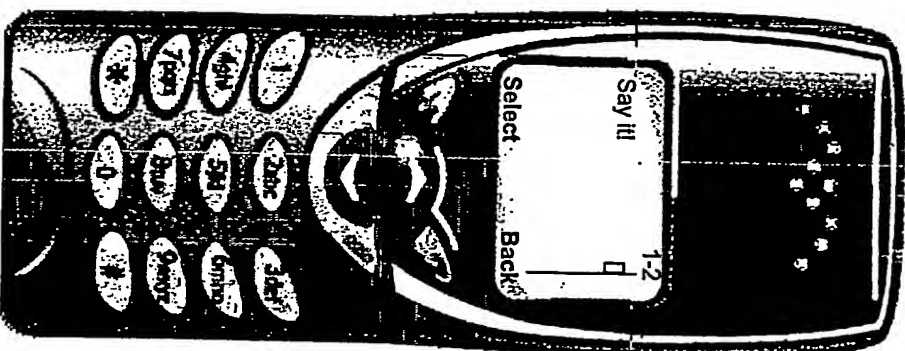


Strictly Confidential

Mobile Voicemail Management System



This GUI will vary when the user is speaking to the Voice Conversion Engine and could be as simple as:

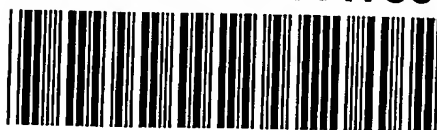


The user is taken through all the necessary aural prompts for entering the phone number, or manually searching and/or entering, speaking their text message and sending. The commands are both voice driven and keyboard driven.

ENDS



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